

Barriers, Potential Solutions

Barrier No. 1: Access to Capital and Return on Investment — If broadband services are to be deployed throughout rural America, the access to capital and return on investment disparities must be overcome.

It is important that big broadband be the goal throughout the country, because wireless initiatives are not sufficient to drive emerging applications in the areas of communications, health care and commerce.

In examining what might be done to stimulate investment in rural America deployment, personnel of companies that finance both public and private ventures were consulted, principally Managing Director Ralph McGinley of Oppenheimer & Co., which has provided investment banking services to rural broadband projects – municipal, public-private partnerships, and private applications – across the country.

Municipal Projects

McGinley and others noted that while the municipal tax-exempt market has a deep appetite for this type of debt, which has and will provide the development capital for broadband projects, these investments will not be made if bond investors must assume all the risk without credit enhancements. In other words, there is a market for municipal bond capital for broadband, but it cannot be accessed without credit support.

Utilizing tax-exempt revenue bonds, Oppenheimer financed the fiber-to-the-home project now under construction in Monticello, Minnesota. Revenue bonds are the only vehicle available for the financing of such projects because few if any municipalities will be willing to place the entire debt of their taxpayers.

All investment officials agree that there is a substantial municipal revenue bond market that could be attracted to sound projects with some level of credit enhancements where the financing tool used is tax-exempt bonds.

McGinley believes that to achieve rapid expansion of big broadband across the country, policymakers must embrace broadband as the next level of public utility. In addition, he says, the national provision of some form of credit enhancements which will support municipal debt offerings will open the door for that to happen. He suggests about fifteen projects in Minnesota alone would move forward with the proper program in place.

Private Projects

McGinley also discussed the question of access to capital from the point of view of a small private start-up such as HBC and whether any of these approaches for credit enhancements are valid for this situation. In his opinion, HBC, built by private funds, is an exception. If the private market providers were going to do more of these builds, he says they would have already been done.

First, the lack of tax-exempt financing pushes up the cost of capital, assuming investors could be found.

Second, private investors will compare the return on their investment to other market options.

There is a gap between what is achievable by a small start-up fiber-based service provider and current market expectations on ROI. McGinley believes comparing returns from a small private fiber provider start-up and a public utility is invalid. A public utility generally provides service to 100 percent of a market and it is that factor that leads investors to believe in the assured and safe investment claim. A telecom/broadband provider start-up has to project much less than 100 percent penetration. Moreover, what penetration will be achieved cannot accurately be predicted. Furthermore, McGinley believes the expected return would need to be in the neighborhood of **16 to 18 percent**, rather than 8 percent of a public utility because of the risk associated with a start-up and the cost of debt capital – if such debt capital is even available.

Given the gap that currently exists between private investor returns and market expectations, McGinley believes that credit enhancements and a large ROI subsidy (that could approach almost full subsidy) would be necessary to encourage the private sector to invest in private initiatives as opposed to public utility approaches.

Potential Government Backed Credit Enhancements

a. **Omnibus backing: grants or low-interest loans.** There is value in the government providing grants to build out big broadband projects. Low-interest loans are much less valuable. However, any benefits must be viewed in relation to drawbacks. McGinley thought this the least attractive of the alternatives, saying there are process and allocation problems (similar to the stimulus situation), and it ties up upfront government money and involves oversight which is unattractive to both parties.

b. **Fast-Track Partial Loan Guarantees.** The federal government already has one of the best credit enhancements at its disposal: partial loan guarantees. But the Rural Utilities Service (RUS) program has never been used because: 1) the 80/20 split on first dollar losses has not

been sufficient to attract private investors; 2) the approval process takes too long; and, 3) direct loans from the government have lower interest rates than a federally guaranteed private loan. The program should be tweaked in two ways:

First, the guarantees should cover 100 percent of losses up to 40 to 60 percent of the loan.

Second, because private investors take on half the risk but write a check for the full amount, the government can rely on them to do a thorough vetting of projects, allowing the government to implement a fast-track approval process. The new process permits the government to use its limited taxpayer dollars to encourage private investment for rural projects.

Finally, changes in the tax code, allowing projects financed by tax-free municipal bonds to qualify, should be seriously considered. This loan guarantees option is favored by many investors.

c. **National capital pool.** The pool would act as a first guarantor for a portion of the loss should there be a shortfall on a project. Projects would have to meet specific criteria to be covered.

d. **Debt service reserve fund replenishment program.** This would be similar to what is now done by credit worthy entities in private financings. An example would be that on a \$26 million project, the associated debt service reserve fund to be guaranteed would be \$2 million. There would be ceilings so that payout would be no higher than 10 percent of the par amount of the bonds in a given year. Example: In year four, the \$26 million project has a shortfall of \$750,000 that is filled from the reserve fund. The draw would be as a loan from the federal debt service fund repayable under manageable terms. There is also a question of how long this debt service reserve fund guarantee would remain in place, how many times it could be tapped, etc. A parameter formula would identify threshold conditions for burning off the covenant as the business got established and secure. McGinley considered the debt service reserve fund replenishment program the most attractive option. He has prepared a short analysis of the fund. The analysis has been circulated to the state governments of Indiana, Vermont, and Minnesota. It is available, if desired.

e. **Universal Service Fund.** The federal government, given the application convergence going on around fiber in the communications field, should be encouraged to reconfigure the Universal Service Fund (USF) that assists rural telephone companies to include big broadband projects. There is a potential advantage to the latter strategy in that fiber networks, unlike copper and coaxial plants, now are rapidly appreciating in value, providing reward to investors at the time of exit. The USF reconfiguration should include provisions that allow the federal government to share in the financial benefits that are realized at the time of exit, allowing the fund to enhance its assets for distribution, fueling more rural-area deployment.

Barrier No. 2: Transport Costs — Service providers in rural America are at a severe disadvantage when it comes to the cost of broadband transport. While fiber transport companies have available fiber that could be used to reduce costs to rural communities, few network points of presence (POPs) have been created in rural areas. This fiber typically runs alongside interstate highways, state highways and railroad tracks. Most of the POPs, however, have been created in larger towns or in locations where multiple fiber providers converge. There are thousands of small towns that are 50 miles or more from a network POP. Connecting these small towns to a network POP is possible usually only through the telephone local exchange carrier (LEC), and in many cases two or more telephone companies may be required to make the necessary connections to complete a transport link to a POP. This is known as the loop cost. The loop cost of a simple DS3 in a rural area could easily run more than \$5,000 per month compared to a more typical \$550 in an area nearer a POP.

Reducing transport costs would encourage more rural last-mile services at affordable costs, but transport companies have not responded to the need because linking into a fiber route typically costs \$100,000 to provide a hut with appropriate electronic equipment and power. Recovering this expenditure drives up cost to service providers and makes last-mile service expensive.

Incentives are needed to encourage fiber transport companies to locate huts at strategic points amid clusters of communities. These huts could be used by neighboring communities and eliminate the need for multiple-loop providers. If a community or local provider built fiber to the rural POP, it would also eliminate the high costs charged by some rural LECs.

The federal government logically is the source of last resort for incentives or subsidies to the transport companies to assist with the significant start-up costs.

Low-interest loans from RUS could be used to put facilities in place. Then, if both RUS and the transport companies used a model developed by HBC, a three-way benefit would result, with the last-mile customers, service providers and transport companies all as beneficiaries of the program.

To eliminate huge start-up costs that prevent rural providers from expanding services, including broadband, HBC charges its rural provider wholesale customers on a per-subscriber basis for use of fiber and other facilities needed to provide last-mile services.

Per-subscriber charges allow the provider to build revenues in new territories without the burden of financing all of the start-up costs. Payments accelerate as customer numbers surpass plateaus negotiated in advance. When customer numbers reach the top plateau, the balance of the start-up costs and financing fees become due.

This model allows service providers to build business cases that support last-mile extensions to more rural areas.

Barrier No. 3: Access to Training, Operator Understanding — While standards and training programs exist for providers who deliver content by copper, coax and hybrid fiber-coax, no such programs exist for those who deliver content via fiber-to-the-home networks. While the federal government should develop the standards, training programs would likely be most successful if developed and operated by private sector organizations such as the Fiber To The Home Council.

The primary challenges are knowledge of the optical domain, the use of multiple wavelength and physical and technical skills needed for fiber splicing and management. The old model of contractor fiber splicing doesn't work well in the FTTH environment, at least outside main plant construction. Every new drop line must be spliced, tested, and provisioned, these operations often occurring during conditions that are unfavorable. Even with new connectors, special skills are required.

Government support for training for implementations, operations, and management of fiber-optics networks would help accelerate the spread of successful fiber-optics network facilities throughout the country. A training initiative should embrace two steps.

The first step would be to support a program to accelerate identification of best-practices training for fiber implementation, operations, and management. Such a program might take some lessons from both telecommunications institutes and from industry groups also committed to quality training. For example, the National Regulatory Research Institute (NRRI) focuses on creating the knowledge to meet regulatory challenges (among other goals). There is a similar need to rapidly identify best practices for training to meet the fiber implementation challenge. In this step a small but focused challenge program set up in cooperation with the industry associations and university centers would aim to provide rapid results identifying best practices for training and management.

The second step would be to support a program of training for implementation, operation, and management of fiber-optics networks. Support for training would be particularly beneficial to smaller operators.

A pool of funding for participation and attendance at relevant industry and research conferences would be simple to administer and would take advantage of available resources.

A second more ambitious approach would be to create something like a Fiber Training Institute (FTI)). A rough analogy might be made to the work of the United States Telecommunications Training Institute (USTTI), which is a non-profit public-private partnership between senior federal officials and leaders of the U.S. information and communication technology (ICT) and broadcast industries focusing on development and training for the developing world. The purpose of a Fiber Training Institute would be very different with a focus on cutting-edge

development and training for U.S. fiber implementations and operations committed to big broadband to the home. The actual training sites might emulate the practice of the USTTI which takes place in corporate and federal training facilities, laboratories and universities. A decentralized highly effective training program developed by the FTTH Council is envisioned.

Conclusion

Although HBC's return on investment is not likely to encourage venture capitalists to fuel accelerated progress in broadband developments across rural America, the company's investors are satisfied with the role the networks have played in development of the communities that now have networks.

Based on population growth (including the increase in telecommuters), the number of new enterprises, leading-edge applications in the area of health care and education, and appreciation in the value of real estate wherever HBC's broadband networks are located, there are more than sufficient reasons to be satisfied.

As one of HBC's shareholders said at the firm's annual meeting in July:

The value of the benefits created? **Priceless!**

It is evident that rural America needs big broadband pipes. With the National Broadband Plan, the federal government has an opportunity to establish the mechanisms to make that occur. HBC stands ready to provide support to help make that happen.